

## REMARKS

Claims 10-22 are pending in this application. Non-elected Claims 1-9 have been canceled without prejudice or disclaimer, and they may be presented in a divisional application. Claims 10, 19 are amended. As to the amendment to claim 10, see, e.g., claim 12, Applicants' specification at page 5, line 26+, etc. The amendment to claim 19 corrects a spelling error. As to new claims 21-22, see, e.g., original claim 1 and Applicants' specification at page 4, lines 22-23.

At page 4 of the office action, Claims 10-20 have been provisional rejected on the ground of nonstatutory obviousness-type double patenting. The Examiner cites claims 1-2, 4-9, 12-13 of Application No. 11/244,401.

Applicants respond as follows. The cited application no. 11/244,401 is not patented. Therefore no further response is needed at this time to the provisional rejection.

At page 5 of the office action, Claims 10-11, 13-15, 19 have been rejected under 35 U.S.C. 102(b) as being anticipated by Balko et al. (US 4,339,322) (a reference cited by Applicants and mentioned at page 7 of their specification).

At page 6 of the office action, Claims 10-11, 13-14, 19 have been rejected under 35 U.S.C. 102(e) as being anticipated by Butler (US 6,752,937) (cited by the Examiner).

Applicants respond that amended Claim 10 is believed to be free of these anticipation rejections, at least for the reason that Balko and Butler fail to disclose a "method of manufacturing fuel cell bipolar plates" comprising use of a wet-lay process. (Applicants' claim 10.) Reconsideration and withdrawal of the anticipation rejections are respectfully requested.

At pages 7-8 of the office action, Claims 12, 16-18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Balko in view of Tucker (US 5,614,312) (cited by Applicants). The Examiner admits that Balko fails to disclose (1) forming the bipolar plates using the wet-lay process or (2) depositing a second polymer on a top and bottom of the stack. The Examiner's

position is that it would have been obvious to use the wet-lay process of Tucker to form the bipolar plates in Balko because the wet-lay process yields plates that have improved conductive and electrical properties.<sup>1</sup>

Applicants respectfully traverse this obviousness rejection. Applicants submit that using the wet-lay process is beyond the level of ordinary skill and is an inventive concept by Applicants. As Applicants explained in their specification (which has the force of Declaration evidence) at page 2, bipolar plates must have high electrical conductivity, sufficient mechanical integrity, corrosion resistance, low gas permeability, and low-cost in both materials and processing. This is what is wanted. When making bipolar plates by compression molding, which is how most are made, because most polymers have extremely low electronic conductivity, excessive fillers have to be incorporated, and it is very difficult to get high conductivity and sufficient mechanical properties at the same time. When solving one problem, such as this problem, other problems tend to be introduced. For example, when ORNL recently developed carbon/carbon composite bipolar plates, the manufacture process consisted of multiple steps, including production of carbon fiber/phenolic resin preforms (by slurry-molding or wet-lay process) followed by compression molding, and the pyrolysis and densification on the surface by a CVI process. However, ORNL's process is too complicated and not economic.

Applicants submit that the possibility of using Tucker's wet-lay process to form the bipolar plates in Balko is not obvious, even for experts in Applicants' art, and certainly not for someone of ordinary skill. The Examiner's combination of Balko and Tucker therefore is respectfully submitted to be beyond a person of ordinary skill in Applicants' art. Please note that Tucker fails to disclose fuel cell bipolar plates. To the contrary, Applicants pioneered bipolar plates using wet-lay composite materials without that combination

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<sup>1</sup>At page 9 of the office action, dependent Claim 20 has been rejected under 35 U.S.C. 103(a) based on a combination of three references, Balko, Tucker and Niu (US 2003/0089890).

having already been made by someone else previously.

Also, it must be appreciated that Balko's examples already had high conductivity (with some examples having resistivity that translates to above-200 S/cm conductivity). Therefore, the Examiner's assumption that a person of ordinary skill in the art would want to modify Balko to get improved conductivity must be challenged, because Balko already was getting high conductivity. Therefore a person of ordinary skill in the art would lack that concern or motivation when reading Balko.

Additionally, a person of ordinary skill in Applicant's art exposure, if any, to a bipolar-plate making process incorporating wet-lay processing would have been with ORNL's process that was too complicated and uneconomical, which would translate into his failing to be motivated to incorporate wet-lay processing.

Therefore, reconsideration and withdrawal of the obviousness rejections are respectfully requested.<sup>2</sup>

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 10-22 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephone or personal interview.

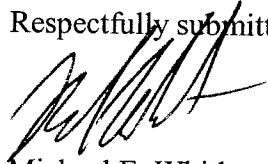
A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any

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<sup>2</sup>For simplicity and brevity, at this time Applicants are not further commenting for the various dependent claims.

overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael E. Whitham', is written over the typed name.

Michael E. Whitham  
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